



The

# GARzette



The Official Newsletter of the Gwinnett Amateur Radio Society

September 2025 <http://www.gars.org/> Volume 52, Issue 9

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[www.GARS.org](http://www.GARS.org)

**Don't forget to support our  
advertisers at the back of the  
GARzette.**



### TechFest

Gwinnett Amateur Radio Society

**GARS January Exhibition of the  
Technical aspects of Amateur Radio  
Held at the Gwinnett County Fairgrounds**

**The next TechFest is January 31, 2026**

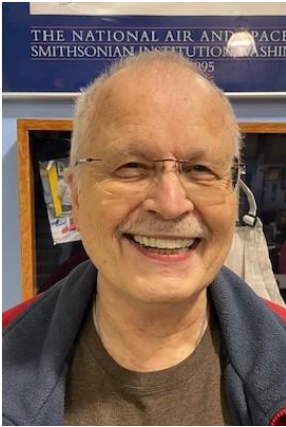
**GARS Meeting: Operating Etiquette – VHF/HF, Rag Chew vs Contest – Various  
Speakers**

**Tuesday September 9, 2025 at 7:00 PM**



## President's Message

### From the President...



This is one of the largest GARZettes I have seen. It reflects the amount of things that GARS has done or completed in August.

The survey ran until the end of August and the results are included. Lots of interesting results from the GARS members and the feedback is appreciated. How the survey will affect the operation of GARS is still open, but it will surely change the direction of how GARS operates.

Joseph Farkas KX4YS is a recipient of the GARS Scholarship given out by ARRL. There is a reproduction of the letter Joseph sent explaining who he is and how he is pursuing his education.

There was a General HamCram with very good results – and thanks to Ralph Pickwick KJ4CNC and John Davis WB4QDX for putting the HamCram together and being the instructors.

The VE Team lead, Dave Bruce W4DTR, has reached a team milestone of having administered 2,000 exams with our monthly exams, exam sessions held at school clubs, GARS HamCrams, GARS TechFest and at the Stone Mountain Hamfest.

The GARS member spotlight is continuing with our Education Chairman

Ralph Pickwick KJ4CNC. These articles provide insight into the talents and interests GARS has hidden in its members and it is refreshing to read about the scope and interests existing in the members of GARS.

Last meeting we had an expanded “pass the mic” around to get brief insights into the members. It was a very interesting time to learn about the other members and possibly find someone with common interests. It took more time during the meeting introductions so it won't be repeated at every meeting – but it may be a part of meeting several times a year.

The Stone Mountain hamfest is coming up in the first weekend of November. GARS plays a big support role. Signing up to help with the various tasks to make this year's event a success is available at the Stone Mountain hamfest website.

Next month, we will be holding a “Meet the Members Contest” to not only encourage use of our repeaters but also get members to talk to each other and actually do a face-to-face meeting (gets another point). The rules will be available on GARS.org and also available in next month's GARzette.

73,

**Bob** – K4CQO

Club President / GARZette Editor

## GARS Repeaters and Other Communications

|                                                                                                                                                                                                                                                                          |                                                                                                                           |                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>2 Meter Repeaters</u><br>147.075(+) MHz Tone 82.5<br>147.255(+) MHz Tone 107.2<br><u>1.25 Meter Repeater</u><br>224.580(-) MHz Tone 100.0, 1.6 MHz Offset<br><u>70 Cm Repeaters</u><br>444.525(+) MHz Tone 82.5<br>442.100(+) MHz Tone 100<br>442.325(+) MHz Tone 100 | <u>6 Meter Repeater</u><br>53.110 (-1 MHz) No Tone<br><b>Other Resources:</b><br><u>APRS</u><br>144.390 -- 1200 Baud W4GR | 6M<br>Operational in Buford<br>147.075 Operational in Snellville<br>147.255 Operational in Snellville<br>224.580 Operational in Grayson<br>442.100 Operational at Goshen Springs Rd,<br>Norcross<br>442.325 Operational in Buford<br>444.525 Operational in Snellville<br>Link remote receivers being added |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Notable Web Links

Ham Radio Glossary: <https://noji.com/hamradio/glossary.php> a very comprehensive listing provided by Noji Ratzlaff KNØJI. On his site there is also a lot of information about getting started in ham radio.

### Need Help – Let GARS Elmers answer your questions

Send an email to [elmers@gars.org](mailto:elmers@gars.org) with the subject listing the area (like Antennas, Repeaters, Digital, DMR etc.) of your query to get to GARS Elmer volunteers.

## About the GARzette

The *GARzette* is the official monthly newsletter of the Gwinnett Amateur Radio Society, serving its members and other persons interested in the advancement of the Amateur Radio art.

Original articles, art, and photos are invited and encouraged. Previously copyrighted submissions cannot be accepted for reprinting unless permission from the appropriate publisher is provided in writing along with the information being submitted. If reprints are from publications allowing their unrestricted use, please include a copy of the printed permission contained in the publication.

If possible, bring your articles to the monthly meeting in Microsoft Word or rich text (.rtf) or text or HTML format or by e-mail to [editor@gars.org](mailto:editor@gars.org). Artwork can be accepted in most any graphics format and can be submitted via e-mail to the same address. Alternate means of submittal can be arranged when necessary.

In keeping with the Amateur Radio spirit, permission is hereby granted for the reproduction of The *GARzette* articles by other Amateur Radio club newsletters provided that proper credit is given to the individual author and *The GARzette*.

*The GARzette* is published each month with the assistance of Karen KI4HPP and Kyle W4KDA who print copies for distribution at meetings, etc. and Dave Bruse, W4DTR, who distributes the newsletter electronically.

Deadline for submissions is the 28th of each month for inclusion in the following month's issue. For additional information view our Website at: <http://www.gars.org> [PS— Articles to publish in the *GARzette*, either written by GARS members or published elsewhere, are always welcome. —Ed.]  
Newsletter Email: [editor@gars.org](mailto:editor@gars.org) Editor: Bob Hoffmann, K4CQO

## GARS Meetings & Workshops

**GARS Meetings and Workshops are held in-person at the EAA 690 Hangar, 690 Airport Rd, Lawrenceville, GA 30046.**

**Meetings and Workshops are OPEN to all, feel free to share your invite with others.**

When GARS meetings are available on **Zoom** the **login** info will be posted to <http://www.gars.org> prior to the meeting. Members are able to attend the GARS Executive Zoom Meeting on the 1<sup>st</sup> Tuesday of the month – send an email to the GARS President ([president@gars.org](mailto:president@gars.org)) for information to attend.

### **GARS Meetings Schedule (second Tuesday @ 7:00 PM): (these are the presentations)**

- September 9 - Review, discussion, and examples of Operating Etiquette, Part II
- October 14 - Review of Favorite Ham Radio and Related Websites and Apps
- November 11 - Review of Favorite Ham Projects
- December - No Meeting - Holiday Party

### **Workshop Schedule (third Tuesday @ 7:00 PM): (these are the Hands-on Workshops)**

- September 16 - Review, discussion, and examples of Operating Etiquette, Part II
- October 21 - Review of Favorite Ham Radio and Related Websites and Apps
- November 18 - Review of Favorite Ham Projects
- December - No Meeting - Holiday Party

#### **GARS Meeting – September 12, 2025 Review, discussion, and examples of Operating Etiquette, Part II – Various Speakers**

On-air Operating Etiquette and Practices will include the following topics:

- Repeaters - How to initiate a contact or respond to a call, roundtables, nets
- D-Star - How to initiate a contact or respond to a call, roundtables, nets
- HF Ragchew
- HF Nets
- Contests
- Other digital modes

#### **GARS Workshop – September 19, 2025**

GARS workshops provide further information about the presentation given the week before on a one-on-one basis with the various presenters and there are also Elmers present on a variety of subjects to help with any questions you may have about ham radio – including help you're your equipment that you can bring in.

**Elmers are always present at the GARS Workshops. Feel free to bring your questions to the Workshop. If your project is small enough to bring to the meeting, let us know in advance so we can bring tools, test gear, etc.**

GARS would like to thank Mike Weathers for his presentation on DXing and the ways to do it to maximize your results.





## GARS Happenings

### 20 Years ago in the September 2005 GARzette:

- Earl, AF4FG, had a great article labeled “Dark Suckers and Ham Radio” which is oddly relevant to today's political environment
- GARS has a history helping schools and the beginning of helping Snellville Middle School is in this issue

You can always browse the GARzette archive at <http://www.gars.org/newsletters>. 73, Bob, K4CQO, GARzette Editor



### Health and Wellbeing – Sandy Jackson, KJ4DRO

Look for this resource on Email (<https://gars.org/contact/>) and use it as a means to convey information about a GARS family member or Silent Key notification.

## Net Managers Corner

### Monday Night 2 Meter “Want, Swap, Sell, and Information Net”

### GARS NEEDS MEMBERS TO SERVE AS NET CONTROL STATIONS!

GARS is a great Amateur Radio service club with the membership and awards to prove it. Our club is very busy and active, and we use the Monday night net to get timely information out to our members. Weekly participation is needed to make our net function well. There is only a small group of very dedicated people who make the net happen each week, and we need more members to volunteer to serve as Net Control Stations (NCS) on a rotating basis.

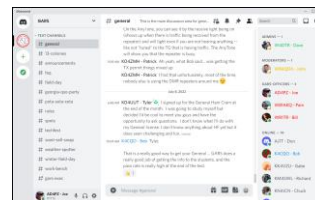
Out of almost 300 members, there are only five operators who serve as the NCS for the GARS net every Monday night. In no particular order, they are:

Ray – N4GYN    David – KA4KKF    Kevin – W4KIB    Bill - WD4AMC    Chuck – KK4TKJ    Ed – W4BSR

As GARS Net Manager (Chuck KK4TKJ), I would like to have more volunteers to fill NCS positions. I do plan and post the schedule months in advance. Any conditions will be accommodated that you as a rotating NCS need to place on the scheduling of your duties. If your plans change, I can make adjustments for the schedule to work, and I will make those changes happen as soon as I am notified of a problem. As Net Manager, I also send out reminders each week to let the NCS scheduled know he or she is NCS for the next Monday night net. In short, serving as a rotating NCS is a small duty but a great contribution to the club. The “Want, Swap, Sell Information Net” begins promptly at 19:30 every Monday night and runs about 30 minutes. As a scheduled NCS, you will request the assistance of a volunteer alternate NCS each time you have Net Control. Your simple duties will be to tune in to the GARS repeater, read the script, take a few notes and forward the information to me for record keeping.

Please lend a hand and contact (Chuck) via Email ([Click Here to Email our Net Manager](#)) to help support the effort that makes GARS the great club that it is. See you on the Nets!

Don't forget about our Discord utility for GARS announcements, news, activity spotting and more. See <http://www.gars.org> top of the home page. This is a sample of Discord. →



## GARS Member Spotlight

Featuring **GARS** Member - Ralph Pickwick KJ4CNC

Presented By Richard Kitz / Member photos provided by Richard Kitz [KM4SWL]



RALPH EXPLAINING HIS ANTENNA SWITCH



RALPH WORKING CONTACTS AT HIS STATION

Ralph Pickwick, KJ4CNC, was raised in Bethlehem, Pennsylvania. He grew up with an interest in building things. He was an avid Short Wave Listener, and built a Heath Kit GR-64 as a high schooler.

Ralph never lost his enthusiasm for SWL. In 2008, he acquired an Icom R75 for SWLing, and he needed to purchase antenna accessories for it, and upon visiting our local Ham Radio Outlet, met an associate who recommended attending a GARS Ham Cram. The VEs for his test were Mike and Susan Swiderski and Robin Cutshaw. And he had known Mike from working with him at Bell Labs.

Ralph has several interesting contact stories. His most interesting QSO card came from a nudist colony in Texas, NU5DE. He was working for a Worked All States award in 2014, and only needed one state for completion, Arkansas. So he decided to work the Arkansas QSO party. And won the first place for Georgia in the QSO party. His most proud QSO is one from Australia on 10 meters as a new ham he was on a 10 meter contact net and the Australian contact was made.

In 2017 Ralph participated in a DX expedition to Curacao, with other GARS members, Norm Schlar, Mike Weathers, and Paul Kelly, lead by Bob Allphin as PJ2T. He has lots of fond memories and exciting stories to tell about that experience, so when you see him ask him about it.

Ralph's shack is equipped with a Yaesu FTDX10, a Yaesu FT897, an Icom R75, and a FAR Circuits antenna switch built from two kits and combined to control 13 antennas in his attic. His mobile rig is a Yaesu FT 857. And he has 2 hand held radios.

Most of you know of Ralph's intense interest in teaching Ham Radio, via his efforts with the Ham Crams. With John Davis WB4QDX, Ralph has been doing Ham crams 2 or 3 times a year for well over a decade. He has been instrumental in establishing school Ham Clubs at McConnell Middle School, and Lilburn Elementary School. His working with Amateur Radio on International Space Station (ARISS) with North Fulton Amateur Radio Club (NFARL) member Daryl Young has been going on for several years. He is currently working with NFARL and a school in Forsyth County for a contact with the ISS in late August, and had a successful contact with the ISS at Woodward Mill Elementary School, in Lawrenceville, in February this year.

I asked Ralph, if he were to give advice to new hams, what would he say:

"I'd say, this new license you have is a license to learn. Go join a good ham club, and soak up all the information you can, ask tons of questions."



## GARS Scholarship Recipient



## ARRL FOUNDATION

Administering Programs to Support the Amateur Radio Community

August 1, 2025

Gwinnett Amateur Radio Society Scholarship  
Ralph Pickwick, KJ4CNC  
2694 Still Farms Place  
Lawrenceville, GA 30043

Dear Friends,

On behalf of the ARRL Foundation Officers and Board, I am pleased to announce the 2025 recipient of Gwinnett Amateur Radio Society Scholarship in the amount of \$1,000.

Joseph Farkas, KX4YS of Suwanee, GA has been selected for the Gwinnett Amateur Radio Society Scholarship from an outstanding group of applicants. Scholarship recipients were recently notified of their awards, and we have received many replies conveying their excitement and appreciation. Attached is a note of thanks from Joseph.

Scholarships through the ARRL Foundation would not be available without the support of thoughtful and generous sponsors such as you. Thank you for making Alfred E. Friend, Jr., W4CF, Memorial Scholarship possible, and for aiding a student radio amateur in their pursuit of higher education. These young people represent the very best in the amateur radio service and you have been a part in helping them start a bright future in their chosen field.

Again, many thanks for your support of this award. If you have any questions, please contact ARRL Foundation Secretary Christina Lessard, KC1TDM, at ARRL ([clessard@arrl.org](mailto:clessard@arrl.org) or 860-594-0348).

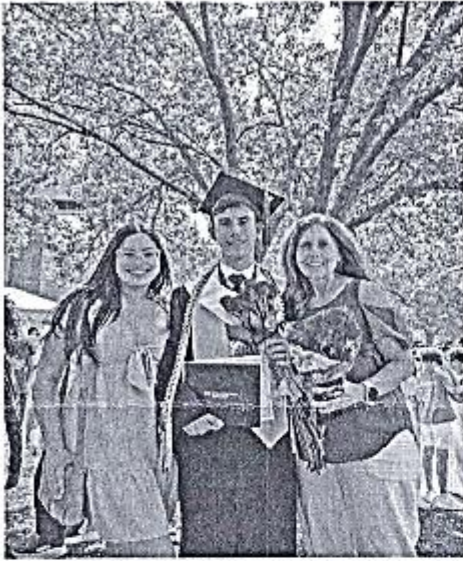
73,

David A. Norris, K5UZ  
President  
ARRL Foundation





Dear officers of the Gwinnett Amateur Radio Society,



My name is Joseph Farkas, and I am the extremely grateful recipient of the Gwinnett Amateur Radio Society Scholarship for 2025.

– A little bit about me: I graduated from North Gwinnett High School back in May. (here's me with my sister and mom!)

I spent the majority of my time in high school involved with the school's FIRST Robotics Competition team as the team's programmer. I found great fulfillment in working alongside passionate classmates to bring machines to life, and we were ecstatic to place fourth at the World Championship in Houston this past April. If you are curious, you can check out footage of our 2025 robot, Driftwood, competing (the the black and red robot with the bright numbers 1771) <https://1drv.ms/v/c/4d4ac7cda562876e/EVqA-QP9BAhLkVjEzDoCwkUBrgepMGfeLD3RGhuMOKIA3w?e=o5Hu9u>

I have recently been invited to stay on the team as an adult mentor – an alum who volunteers their time and experience to support and educate students.



– Team North Gwinnett Robotics, division champions at the 2025 FIRST Robotics World Championship in Houston Texas. I am standing directly behind the blue banner.

Outside of robotics, I have a great passion for studying German. What began as a mandatory class I had to take freshman year turned into a world of possibility: first with a fully-paid summer residential program known as the Georgia Governor's Honors Program, where I got to spend four weeks and four hours a day studying the nuances of German vocabulary in a fun setting with poetry, music, and film. This summer, thanks to the AATG Student of the Year award





stipend, I was privileged to study German in the capital and heart of the nation, Berlin, with an international cohort.



– The summer 2025 international students from Goethe-Institut Berlin, at the Sanssouci Palace in Potsdam, Germany. I am in a blue shirt and white jeans.

When not at a robotics competition or studying German, I loved just being in school, especially my dual enrollment calculus classes from Georgia Tech. I also greatly enjoyed hanging out with friends; we often go biking around Suwanee's newest park, grab bubble tea, or just chat at the library. On the weekends, however, I love spending time with my family. We often use Saturday evenings to play games together and sip on peach milkshakes on our small but lovely porch.

I especially love when I can get away with my dad (the real ham nerd in the family), whether it is for a quick QSO on FT8 or the rare trip up to Blood Mountain for a day of VHF fun. Which brings me to the full story on how amateur radio has played an important part in my life. For one, it served and continues to serve as a connection to my father. When I was only seven, he would put me on his mobile HF to say hi to his friends, and he would later patiently explain to me the intricacies of a simple CQ. I never saw my father more excited than when he talked about radio. It was only a few years later, when I was ten, that he took me to take my technician exam. Even though I couldn't understand a large portion of the language, I loved every minute of studying the exam content – I believe it built a deep appreciation for science in me. But even more than that, I loved building, tinkering, and truly making my own systems. This was the foundation that led me to playing with microcontrollers in middle school, enrolling in engineering in high school, and finding a place on the robotics team.



– Mountain views (I think this one is Brasstown Bald). Great weather for a day on the waves.

Amateur radio even played a role in landing me an internship at Viasat this past year, where I applied my knowledge of communications systems to help develop firmware for satellite antennas, just like the ones I had seen tracking the ISS at hamfests with my father. Even though I am not on the air regularly like I used to be, I still appreciate how influential amateur radio has been for me, and I do my best to find time to ham with my father now and then – he has already packed a radio for me to stay in touch through the Bank of American repeater while I am down in Atlanta.

That brings me to my future: I am extremely excited to be starting school at Georgia Tech in just two weeks as a Computer Science major! I also plan on picking up minors in Robotics and German. Outside the class, I hope to get involved at the Georgia Tech Research Institute with hands-on software engineering for projects such as prosthetics. And of course, I will be sure to leave some time to stay on the air. Your scholarship and support is a tremendous blessing for my education that I hope I can prove worthy of. Thank you so much!

73,  
Joseph



**Joseph Farkas,**  
**KX4YS**  
Gwinnett Amateur  
Radio Society  
Scholarship

## GARS QCWA Award



GARS received a \$1,300 grant from the QCWA (Quarter Century Wireless Association). Anthoney Perales (a GARS member) and President of the Peach State Chapter presented GARS with the grant. Dallas (N4DDM) was instrumental in getting the information to Tony for the award grant.

GARS is planning on using the grant to enhance our repeater systems starting with the internet connection to re-enable our Echolink service.

## Member Survey Results

### Membership & Licensing

- **Total responses:** 99
- **Current members:** 96 Yes | 2 No
- **License levels:**
  - Extra: 62
  - General: 21
  - Technician: 11
  - Advanced: 4
  - Not Licensed/Expired: 1

### Membership Duration

- Over 10 years: 39
- 4–10 years: 25
- 1–3 years: 21
- <12 months: 13

### Attendance Frequency

- Rarely: 35
- Every month: 19
- Frequently (>50%): 19
- Occasionally (<50%): 17
- Haven't yet: 9

### Communication & Newsletter

- **Top preference:** Email (alone or paired)
- **Newsletter satisfaction:**
  - Very satisfied: 56
  - It's ok: 29
  - Needs improvement: 8
  - Don't read / not familiar: 5

### Barriers to Attendance

- "Other": 40
- Time/date conflict: 20
- Physically unable: 9

### Events & Topics

- **Most popular event types:** Tech Presentations, Social Gatherings, Radio Ops
- **Requested topics:**
  - HF Ops: 13
  - Digital + HF Ops: 11
  - Digital + HF + Emergency: 7
  - Digital + HF + Repeater: 5
  - HF + Emergency: 4

### Member Involvement

- Willing to present: 16 Yes | 73 No
- Buddy system interest: 16 Yes | 37 Maybe | 41 No

### Event Logistics

- **Best times:** Weekday evenings (top), then weekend mornings/afternoons
- **Preferred venues:** Inside Gwinnett County (esp. Lawrenceville, Suwannee, Buford, Sugar Hill)



## AI and Ham Radio, a continuing investigation

### AI and Amateur Radio: The Beginning - Definitions

By Richard Kitz [KM4SWL] with AI collaboration

#### What is AI, Really?

Artificial Intelligence isn't magic, despite what the marketing folks want you to believe. At its core, AI is pattern recognition on steroids - sophisticated computer programs that analyze massive amounts of text, find patterns, and generate responses based on those patterns. Think of it as a very advanced autocomplete system that's been trained on a significant chunk of human knowledge.

Like amateur radio, AI works best when you understand its limitations and capabilities, then experiment to find what works for your specific needs.

#### My Accidental AI Journey

As a retired IBM systems programmer, I approached AI with the same healthy skepticism I'd apply to any new technology. When ChatGPT started making headlines, my first thought was "great, another overhyped tech bubble." But curiosity got the better of me, and I decided to kick the tires.

That was the beginning of what I now call my "Fabulous Five" comparative analysis project - testing five different AI systems to see how they handle the same questions and tasks. What started as casual experimentation evolved into a daily part of my routine, from helping debug Java concepts in my college coursework to analyzing GARS survey data.

#### The Break Room Philosophy

Early on, I realized that treating AI like a sterile help desk system was limiting. Instead, I developed what I call the "break room" approach - conversational, peer-level discussions where everyone (human or AI) brings their expertise to the table without ego or condescension.

This approach works because it mirrors how we actually solve problems in amateur radio: we sit around (virtually or literally), share what we know, admit what we don't know, and work through challenges together. The AI becomes a knowledgeable colleague rather than an impersonal tool.

#### Real-World Applications in Amateur Radio

AI has helped me with:

- Learning digital modes: Understanding FT8 protocols and DMR networking concepts
- Survey analysis: Processing GARS membership feedback and identifying patterns
- Technical writing: Improving newsletter articles and presentation materials
- Troubleshooting: Working through equipment problems and configuration issues

#### The Reality Check: What AI Can't Do

AI isn't perfect. It can't solder. It can't key a mic. It can't replace Elmers. What it can do is support and enhance the great work we already do - without taking anything away from the human connection that makes amateur radio special.

I've also seen it confidently provide wrong technical specifications, misunderstand context, and generate code that looks good but doesn't work. The key is verification - just like we double-check antenna calculations or verify repeater frequencies.

#### Your Mileage May (And Will) Vary

My approach works for me because it fits my background and thinking style. The important thing is to experiment. Try different systems, ask the same question multiple ways, test the answers against your own knowledge. Treat it like building and tuning an antenna - start with theory, test in practice, adjust based on results.

### What's Next?

In future articles, I'll introduce you to my "Fabulous Five" AI systems, show specific applications for ham radio projects, and explore some of the deeper questions about what it means to have artificial intelligence as a conversation partner.

AI won't replace the human expertise and community that makes amateur radio special. But used thoughtfully, it can be a valuable addition to our toolbox - just like any other piece of test equipment or reference material.

This article was developed in collaboration with Claude AI, demonstrating the kind of human-AI partnership I'll be exploring in this series. Questions, comments, or suggestions for future topics? I'd love to hear your thoughts on where AI could fit into your ham shack. Let's make this a conversation. Contact me at [vicepresident@gars.org] or catch me at the next GARS meeting or workshop.

Richard Kitz [KM4SWL] is a retired IBM systems programmer, current Georgia Gwinnett College student, and GARS member who enjoys exploring the intersection of traditional amateur radio and emerging technologies.

## General HamCram Results

The General HamCram was held on 8/23 & 8/24/2025.

There were 9 upgrades to the General class including one new Technician to General.

The following are the new General class license holders:

- PAMELA S BROWN – KJ4RYV
- JAMES W LAWRENCE – W4KLL
- NATHAN R MELANSON – KN4FZE
- JIM O'BRIEN – KQ4RNA
- JOHN E OVERLEY – KQ4HGO
- ANDREW SOUVINETTE – KQ4VUL
- MARIO P STEWART – KR4CUK
- MICHAEL A STEWART – KR4CVF
- JOSEPH M TOLLISON – KQ4YBT
- With Tchenevia A Stewart – KR4GKY as a new General

Special thanks to the Volunteer Examiners who made this exam session possible:

- KK4TKJ – CHARLES MC CORD (Co-CVE)
- K4CQO – ROBERT HOFFMANN
- KM4SWL – RICHARD KITZ
- WS3V – WILLIAM RUDD
- K4BYE – James Cheshire
- AI1U – ANTHONY PERALES

## Technician HamCram October 25 and 26

**WHEN:** Saturday October 25<sup>th</sup> and Sunday October 26<sup>th</sup> 2025; 8:00 am to 4:00 pm each day, exams start at 4:00 pm Sunday (this is a CLOSED exam session, only open to registered students of the class).

**WHERE:** EAA 690 Hangar, Gwinnett County Airport – [690 Airport Rd, Lawrenceville, GA 30046](#)

**QUESTIONS:** Questions about the class or the exam session — [click here to email the instructors.](#)

**REGISTRATION:** See the registration form on the GARS website; <https://www.gars.org>



## Member Opinion

**[Editor's Note]** This new section is dedicated to viewpoints from members. The opinions expressed are those of the author and don't necessarily reflect the official stance of the club.

### **Hams at Your Service**

By Richard Kitz – KM4SWL

Amateur Radio is not a hobby! The FCC defines it as the Amateur Radio Service:

"The rules and regulations in this part are designed to provide an amateur radio service having a fundamental purpose..." — 47 CFR §97.1

The FCC then lists its purposes, including:

- "...recognition of the value of the amateur service to the public as a voluntary noncommercial communication service, particularly with respect to providing emergency communications."
- "...expansion of the reservoir of trained operators, technicians, and electronics experts."

That distinction is not semantics — it is power.

- Call it a hobby, and lawmakers tune out. No one will fight for your "pastime" when billion-dollar spectrum auctions are on the table.
- Call it a service, and you are speaking the FCC's language. You are defending federally recognized communications infrastructure — in the same category as aviation, maritime, and public safety.

Every time the ARRL calls it a hobby, they weaken our hand. We cannot afford that. Not while spectrum is being sold off. Not while Amateur Radio still provides the last line of communication when all else fails.

We are the Amateur Radio Service.

### **"Hams at your Service!"**

Afterthoughts:

Many of us came to Amateur Radio because it was fun — building Heathkits, chasing DX, experimenting with antennas. And there's nothing wrong with calling it a hobby in that personal sense. The danger is when we use that word outside our circles. In the halls of Congress, "hobby" carries no weight. "Service" does. While we may enjoy Amateur Radio as a hobby, we must defend it as a Service, because it is.

## GARS VE Team History and Accomplishments

Back in early January 2012, I took over as our VE Team Leader from my predecessor, Frank Sauciunas, KF4TQV



Fast forward 13 and a half years later, with the help of several assistant team leaders, many right-hand men (and some of them were women), countless VE's, shutting down due to COVID-19 for a year, switching everything we do from paper forms and paper exams to doing everything electronically on tablets,

and.....

(drum roll please)

Today, our team tested our 2,000 applicants.

To the Greatest Team in the world - THANK YOU ALL!!!

It was truly a Team effort!

|    | A     | B                    | C   | D   | E   | F   | G   | H   | I   | J   | K   | L   | M   | N           | O         | P         | Q         | R     | S        | T     |
|----|-------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------------|-----------|-----------|-----------|-------|----------|-------|
| 1  |       | <b>MONTHLY EXAMS</b> |     |     |     |     |     |     |     |     |     |     |     |             |           |           |           |       |          |       |
| 2  | YEAR  | JAN                  | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | AVG / Month | SUB TOTAL | Tech Fest | Ham Crams | Other | Ham Fest | TOTAL |
| 3  | 2012  | 8                    | 4   | 7   | 8   | 5   | 6   | 4   | 13  | 3   | 7   | 11  | 10  | 7.2         | 86        | 17        | 15        |       | 31       | 149   |
| 4  | 2013  | 3                    | 9   | 3   | 4   | 3   | 3   | 4   | 5   | 14  | 3   | 4   | 10  | 5.4         | 65        | 11        | 41        |       | 23       | 140   |
| 5  | 2014  | 8                    | 8   | 5   | 6   | 2   | 9   | 1   | 7   | 3   | 4   | 5   | 7   | 5.4         | 65        | 20        | 27        |       | 53       | 165   |
| 6  | 2015  | 7                    | 9   | 10  | 7   | 8   | 8   | 4   | 6   | 9   | 4   | 1   | 14  | 7.3         | 87        | 12        | 33        | 16    | 44       | 192   |
| 7  | 2016  | 5                    | 10  | 4   | 4   | 7   | 7   | 1   | 6   | 8   | 4   | 2   | 7   | 5.4         | 65        | 11        | 31        | 1     | 53       | 161   |
| 8  | 2017  | 0                    | 5   | 10  | 6   | 5   | 8   | 4   | 7   | 4   | 6   | 8   | 10  | 6.6         | 73        | 8         | 49        | 9     | 41       | 180   |
| 9  | 2018  | 7                    | 8   | 4   | 10  | 4   | 7   | 6   | 5   | 5   | 1   | 6   | 5   | 5.7         | 68        | 27        | 34        | 6     | 32       | 167   |
| 10 | 2019  | 6                    | 5   | 8   | 3   | 2   | 12  | 4   | 1   | 9   | 13  | 8   | 4   | 6.3         | 75        | 11        | 30        | 10    | 34       | 160   |
| 11 | 2020  | 10                   | 3   | 16  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 9.7         | 29        | 11        | 0         | 0     | 0        | 40    |
| 12 | 2021  | 0                    | 0   | 0   | 0   | 0   | 6   | 4   | 8   | 2   | 6   | 5   | 7   | 5.4         | 38        | 0         | 15        | 0     | 24       | 77    |
| 13 | 2022  | 5                    | 10  | 10  | 5   | 5   | 8   | 8   | 2   | 8   | 6   | 8   | 2   | 6.4         | 77        | 0         | 41        | 9     | 36       | 163   |
| 14 | 2023  | 5                    | 7   | 7   | 0   | 5   | 3   | 3   | 6   | 3   | 4   | 3   | 2   | 4.4         | 48        | 23        | 43        | 7     | 51       | 172   |
| 15 | 2024  | 6                    | 6   | 9   | 10  | 4   | 10  | 12  | 8   | 4   | 7   | 5   | 2   | 6.9         | 83        | 11        | 31        | 9     | 41       | 175   |
| 16 | 2025  | 4                    | 1   | 5   | 0   | 11  | 1   | 2   | 5   |     |     |     |     | 4.1         | 29        | 9         | 23        | 0     |          | 61    |
| 17 |       |                      |     |     |     |     |     |     |     |     |     |     |     |             |           |           |           |       |          |       |
| 18 | AVG   | 6.2                  | 6.5 | 7.5 | 6.3 | 5.1 | 6.8 | 4.4 | 6.1 | 6.0 | 5.4 | 5.5 | 6.7 | 6.2         | 63.4      | 14.3      | 31.8      | 8.4   | 38.6     | 143.0 |
| 19 | TOTAL | 74                   | 85  | 98  | 63  | 61  | 88  | 57  | 79  | 72  | 65  | 66  | 80  |             | 888       | 171       | 413       | 67    | 463      | 2002  |

73 - Dave, W4DTR

## The Basics

### An Unintentional Discovery

de: Bob Schmid, WA9FBO

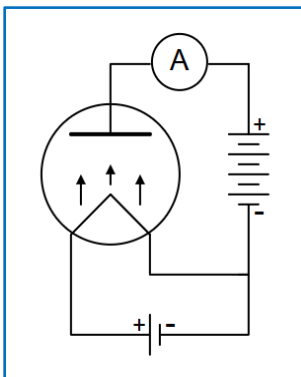
In the late 1870s **Thomas Edison** began to develop a practical, long-lasting incandescent light bulb that could replace gas lamps and candles. Electric lights already existed in the form of carbon arc lamps, but they required high current and were mostly used as spotlights and wide area floodlights. For home and factory lighting, Edison envisioned a parallel connection of numerous light bulbs containing high-resistance filaments.

He initially made the filaments from carbonized plant materials such as bamboo. When heated to a high temperature, the filament glowed and produced light, but over time the material slowly evaporated and coated the inside of the bulb. This darkened the glass, reduced the light output, and shortened the bulb's lifespan.

The problem was eventually overcome through advances in filament materials, protective coatings, and improved vacuum sealing inside the bulb.

But in 1883—before these refinements were in place—one of Edison's experiments unexpectedly led to a discovery that would contribute to the birth of modern electronics.

In an attempt to reduce the carbon deposits, he placed a metal plate inside the bulb near the filament. It didn't fix the problem, but Edison noticed something else.



**FIGURE 1 - EDISON EFFECT**

When the filament was heated, his galvanometer (an early ammeter) showed that current flowed from the filament to the plate without a direct connection (Fig. 1). It happened when the plate was positive but not when it was negative.

Further testing showed that the more positive the plate, the higher the current. He could not only control the current but also shut it off by reversing the polarity of the plate voltage.

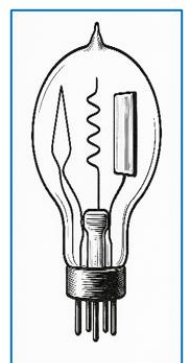
The electron wasn't discovered until 1897, so Edison could not have known that electrons were being boiled off the hot filament and attracted by the positive plate.

Although he did not realize his discovery's potential or the theory behind it, he did patent an "electrical indicator" to detect voltage variations within an electrical distribution network. It depicted current flow in a vacuum and is considered the first electronic patent. The phenomenon became known as the Edison Effect, and later, thermionic emission.

In 1904 English physicist **John Ambrose Fleming**, building on Edison's work, designed a thermionic diode for use as a detector in wireless telegraphy receivers. It was no more sensitive than a cat's whisker detector, but it didn't need adjustment and wasn't disabled when bumped. When equipment began to be powered by AC outlets, the diode was widely used as a rectifier to convert AC into DC.

In 1906 American electrical engineer **Lee De Forest** invented the triode by adding a control grid between the filament and plate (Fig. 2). By applying a small voltage to the grid, De Forest could moderate the flow of electrons from the cathode to the anode. This allowed the triode to amplify weak signals, making it revolutionary for radio broadcasting, telephony, and early computing.

Edison's discovery of the flow of current from a heated filament to a plate inside a vacuum laid the foundation for the development of thermionic devices and significantly advanced the field of electronics.



**FIGURE 2 - DE FOREST TRIODE**

## Little Tips and Tricks with Vintage Radios

### Vintage Amateur Radio

de Bill Shadid, W9MXQ



Last month we talked about the use of the 1950's, 1960's and 1970's General Coverage Shortwave Radios and their use of Bandspread controls to provide better frequency readout accuracy on the ham radio bands – or, for that matter, anywhere in the radio's coverage where the users wanted a wider spread of a frequency area on the tuning dial.

The lessons from last month are fine – and they are correct. However, what was not shown was the procedure to be reasonably sure the radio is actually tuned to the frequency shown on the dial. The fact is, it may be close but almost a certainty that in those radios mentioned in last month's article<sup>1</sup> it is off by some

amount. Maybe by quite a bit.

This is an old story today with Vintage Amateur Radio Collectors. So, you have your totally analog (that is, not digital<sup>2</sup>) readout 1960 vintage station all aligned and ready to test and you call a fellow ham to listen to you on the bands. You tell him/her that you will transmit on 14.250 MHz but to listen and call back on the frequency where your transmitter is sending. He/she hears you and the subject of transmitter quality sound is a forgotten topic when the first statement from them is, "hey, you are transmitting on 14.248.32 MHz – you are way off!!" You, on the other hand, feel complimented because you are accurate to within a little over 0.01% - never mind how close that is – it still does not fit with your on the air partner's digital readout on his/her modern Super Band Burner Transceiver. Oh, forgot to mention, that Super Band Burner also has an accuracy measurement. But never mind – that is generally not up for conversation!! Word to the wise, find another true Vintage Radio Person to help you check that radio. In this world of letter monikers, find a LBDR ham<sup>3</sup>. This is not a testament on non-collectors or new generation hams. It is just that the history of somewhat drifty free running oscillators is fading fast among new hams.

To ensuring reasonable frequency accuracy – or at least a ensure reasonable trust of the frequency read – there are several tools involved:

1. Use of an internal or external 100 kHz Calibrator Oscillator.
2. Use of known nets on the bands being used.
3. Use of Frequency Standard Stations.
4. Use of crystals used for transmitter operation.

We will discuss all four of these methods of calibration. However, for this exercise, we are going to focus on just the Hammarlund HQ-180C Receiver – one of the radios used in the article last month. That Hammarlund is very representative of the two dial (Main Tuning and Bandspread) system used on most radios of the time. In one form or another, you can find this system used on most radios of the time – even including units from Japan (Trio/Kenwood, mostly) or private labeled versions of these radios branded as Allied Radio, Radio Shack, Lafayette, Olson, and others.

The biggest variation was in radios like the also shown Hallicrafters SX-110. Note the following two pictures to illustrate what I mean.





### The Hammarlund HQ-180C

Note the two Tuning Knobs and Readouts. Left is Main Tuning, and the Right is Bandspread.



### The Hallicrafters SX-110

Note the two Tuning Knobs and Readouts. Left is Main Tuning, and the Slide Rule Dial on the Right is Bandspread.

**Both Radios – W9MXQ Collection**

Remember also, for reference, that many radios did not have a ham radio band calibrated bandspread readout. Such radios were more likely to include a 0 to 100 scale that was to suffice to spread out the scale on a portion of the main tuning dial. Do not assume that all such radios were low cost – many were just not intended for ham radio use as their primary market. A good example is the Hammarlund SP-200 SuperPro Receiver covered in the article. The SP-200 was primarily marketed to the military and other government agencies.

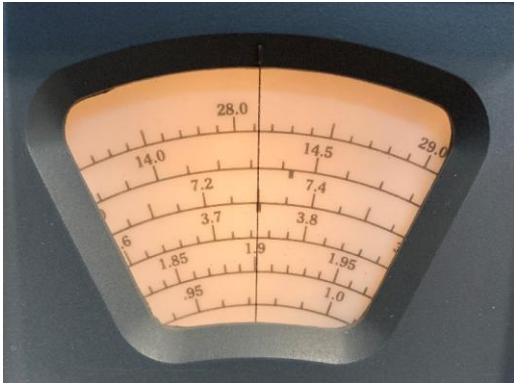
The pictures represent a top-of-the-line radio from Hammarlund and a mid-range radio from Hallicrafters – and their performance reflects that point. This illustration is to show typical radio panel design and is not related to performance.

Back now to the HQ-180C. Recall last month that the example showed how to set the radio to receive on MidCARS (Midwest Amateur Radio Service<sup>4</sup> - <http://midcars.net/>). (We will talk about MidCARS, and other nets, later.) In last month's review, we showed the dial settings for 7258.00 kHz in the following three pictures:



This is the left readout window (reference HQ-180 photo, above). This is the readout window connected to the MAIN TUNING Control. Marked here is the middle arc that includes the range we need. Note in the middle of the red oval, the arc shows a bold mark, or bulge. Move the MAIN TUNING Control so that the indicator falls right on that bold mark, as in the picture just below this one.

**W9MXQ Picture**



As referenced above, note that the readout is now exactly over the bold mark on the arc between 7.2 and 7.4 on the dial. This indicates that the receiver is tuned to 7.3 MCS (MHz), which is the top of the 40-Meter band. We now need to move to the next picture and to start using the BAND SPREAD readout window and Control.

**W9MXQ Picture**



The next part of the process is to move to the BAND SPREAD readout window – to the right of the S-Meter. On the readout window, you can see that I have tuned the receiver on 40-meters (third arc from the bottom to just below 7.26 MCS (MHz) in order to tune in MidCARS at 7258 KCS (kHz).

**W9MXQ Picture**

The first question you should be asking is, “how do you know in the first picture that you are exactly on 7.3 MCS (MHz) on the main tuning dial.” Darn good question because you do not know that for sure! What we showed last month is “reasonably accurate,” but leaves a lot to be desired.

So, first we will bring a 100 kc (kHz) Crystal Calibrator into the picture. These handy devices are either standard equipment in the radio (the HQ-180C has one) or they are available as an external unit or an option that plugs into the radio. Crystal Calibrators provide an accurate<sup>5</sup> signal that can be engaged to provide a carrier on the radio every 100 kc (kHz) from the lowest frequency to the highest frequency the radio covers. The little oscillator provides harmonics of the 100 kc (kHz) signal so when engaged you can hear a carrier accurately place ever 100 kc (kHz) across the spectrum.

So, in the example with the three pictures above – to properly calibrate the radio against the 100 kc (kHz) Calibrator. First adjust the Bandsread dial so the readout is on the 40-meter band (third arc from the bottom) and set at 7.3 mc (MHz). Presetting the Bandsread dial becomes an important step when using any of the calibration tools indicated in this article.

Now go back to the Main Tuning Dial and set it to 7.3 mc (MHz). After setting both dials to 7.3 mc (MHz), turn on the 10 kHz Calibrator. (This is on the SEND – RECEIVE – CALibrate switch on the HQ-180C – elsewhere on other radios so equipped.) Now carefully and slowly move the Main Tuning Knob to zero beat with the Calibrator signal that is audible at 7.3 mc (MHz). If you have to move the Main Tuning to zero beat the Calibrator, do so. Then can be assured that the Bandsread dial is now at 7.3 mc (MHz).

Now tune the Bandsread dial (with the Calibrator still on) to 7.2 mc (MHz) and you should hear the calibration signal again at the next harmonic downward. If you have to adjust the Main Tuning a bit to be accurate, then do so. The fact that the dial is calibrated at 7.3 mc (MHz) does not mean that it is also calibrated at 7.2 mc (MHz). It almost certainly will not be zero beat as far away as 7.0 mc (MHz). Oscillators did, over time, become more and more linear – because the oscillators became digital – not analog. Companies like National Radio and Collins Radio took exceptional measures to make their analog dials as linear as possible – but they still had error from one end of the band to another.

So, what if you do not have a Crystal Calibrator in your radio? Frankly, the majority of radios of the time did not have such calibrators. However, they were available on the aftermarket. Check these examples:



Bud Radio, Inc. Model FCC90B from the 1950's. This self-powered calibrator used a 50C5 Oscillator and a 35W4 Power Supply rectifier. The filaments were wired in series and then powered off the AC Line. This unit was AC-DC and therefore somewhat dangerous<sup>6</sup>. (KB8TAD)



Hammarlund Radio Company XC-100 Calibrator – used a 6BZ6 Oscillator tube. The filament and plate voltages were taken from the host receiver. It dates from the mid-1950's. Some Hammarlund receivers had front panel switching to access the calibrator while others required separate user provided on/off control. (Hammarlund Catalog)



Heathkit HD-20 Crystal Calibrator dates from 1960 through 1975. It operated from an internal 9V Battery to operate the 1N409 Transistor oscillator. It is shown here connected to the Hallicrafters SX-110 Receiver. These are common at Hamfests to this day – and they still work just fine. (W9MXQ)



General Radio 1213-AB Crystal Oscillator Unit is a vintage calibration instrument used by fellow vintage radio aficionado, Pat, W9JI. This unit provides calibration signals every 1 mc (MHz), 100 kc (kHz), and every 10 kc (kHz) as switched. Note the also included General Radio 1203-B AC Power Supply. (W9JI)

External Crystal Calibrators are connected to the antenna input of the receiver to be calibrated. However, whether internal or external, when using a Crystal Calibrator, remember to turn it off when not used for calibration. The first time you forget to do so, you will find yourself wondering why there are so many carriers on an otherwise dead band! Also, you can use accessory (external) calibrators for calibration of a transceiver. By the time transceivers came along, calibrators were either standard equipment or a low-cost option that could merely be plug into the connector provided on the back or inside the radio.

(Older radios can be confusing – carefully note the instruction manual on the subject. Many things



shown today as operating details were assumed to be known in 1960!)

Examples of popular vintage, analog readout transceivers that included a calibrator were:

- Collins KWM-1, KWM-2, KWM-2A
- Hallicrafters SR-150, SR-400, SR-2000, FPM-200
- Drake TR-4, TR-4C, TR-4CW, and TR-4CW-RIT
- Swan 500, 500c, 500cx, 700

Examples of popular vintage, analog readout transceivers that did not include a calibrator as standard equipment (or were optional plug-in devices) were:

- Hallicrafters SR-160, SR-500 (both came with calibrator, but crystal was optional.)
- National NCX-3, NCX-5, NCX-200
- Swan 250, 350, 350c

When using a calibrator in a transceiver that did not include a special connector for connecting the calibrator you need to be careful. Completely remove the calibrator from the antenna connection before transmitting. You will make that mistake only once!!

More sophisticated oscillators, such as the General Radio 1213-AB Crystal Oscillator Unit add another level of potential frequency confirmation with the addition of the 1 mc (MHz) and 10 kc (kHz) positions for output frequency. However, beware when using as close a signal as every 10 kc (kHz) that you actually listening to the signal you think you are. For instance, when listening to 7250 kc (kHz) on the dial – be aware that you may be listening to 7240 or 7260, or even further away.

I regularly use my Heathkit HD-20 Calibrator or the internal calibrators in radios (such as the one inside the HQ-180C Receiver). One point to remember is that the calibrator itself needs to be calibrated. That is done using WWV when there is no modulation, turning on the calibrator, and zero beating the calibrator with the WWV signal by adjusting the tuning trimmer on the calibrator,

Another common way to determine dial accuracy on the vintage radio is to tune to a popular net that can be depended on to always be on the same frequency anytime you listen. I will mention only a few here – you can come across many . . .

- On 40-meters:
  - SCARS (South Coast Amateur Radio Service on 7251 kc (kHz))
  - eCARS (East Coast Amateur Radio Service on 7255 kc (kHz))
  - MidCARS (Midwest Amateur Radio Service on 7258 kc (kHz))
- On 20-meters:
  - Maritime Net on 14300 kc (kHz)  
(Also Navy Net and Coast Guard Net)

When using this method of frequency calibration, tune the net on your bandspread. If it is off frequency as you see on your dial, move the bandspread to where it should be located for the frequency you are tuning. Then, bring the net into tune by carefully adjusting the main tuning knob. On some receivers – including the HQ-180C, there is a fine adjustment of the dial pointer that can be engaged to move the pointer to the correct location for the frequency you are tuning. That control on the HQ-180C is shown on the second page of this article where the front of the radio is pictured. Note the small, unmarked knob to the right of the readout and meter panel.

When using nets, always remember that on occasion they will move to avoid QRM. Listen to the net for a bit before making the adjustment – most times when this happens, the net control operator will announce frequently that the net has moved due to QRM and is operating at a frequency he will announce. For that reason, net frequencies are not as dependable as the next group of known frequencies.



In addition, there are some similar methods of determining frequency accuracy against a known accurate station. There two systems I regularly use:

- I talk to a fellow ham close-by who is using a modern transceiver who can tell me my frequency when I ask him/her to do so. (Thanks to Dave, WØAH, who receives such requests multiple times a month. As another long-time ham, he remembers the days of “estimated frequency.” Dave is also my contact for determining proper sound from my signal when using a vintage transmitter and microphone.
- I use my own Yaesu FT-817ND connected to a dummy load to transmit and detect with my vintage receiver. Dave’s equipment and the FT-817ND have integrated systems to ensure a high degree of frequency accuracy. When doing this, remember to protect the front end of your monitoring receiver or transceiver.

Another method to determine accuracy are frequency standard stations. There are frequency standard stations in most countries in the modern world. In the United States, we have WWV stations at 2.5, 5, 10, 15, and 20 mc (MHz). There was an "experimental mode" transmission on 25 mc (MHz) that ended at the low part of the previous (Cycle 24) Sunspot Cycle. It remains to be seen if it will return. These stations are primarily for calibration of the Main Tuning dial as none of these frequencies fall within the bandspread of a ham radio band<sup>7</sup>.

When using WWV to calibrate the Main Tuning dial, remember that most main dials are not adjustable – so you must simply remember the error that you may well see. My HQ-180C is off a small fraction of an inch on the dial when tuning WWV on 10 mc (MHz).

In the United States, there is another option that is closer to two different ham bands. CHU in Canada is an excellent frequency standard on par with the accuracy of WWV here (at least for our purposes). They transmit modulated and unmodulated signals on 3.33 mc (MHz), 7.85 mc (MHz), and 14.67 mc (MHz). CHU transmissions are not done with as much RF power as WWV. You may have trouble hearing them, depending on your location.

These stations do not move frequency under any circumstances.

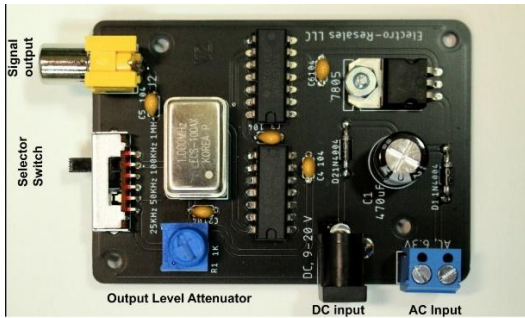
JJY in Japan is very close in its frequency transmissions to what we receive on WWV. (Kenwood radio users will note that some models show WWV/JJY on the bandswitch for 10 mc (MHz) reception.)

One final method of determining frequency on the ham bands is the use of crystals in the transmitter (if you are using a transmitter in your installation and if it can be operated with crystals). Many hams who started as Novices and were required to run crystal control still have a supply of crystals. You can use the SPOT control on the transmitter to send a very low-level signal at the frequency on the band selected on the transmitter – and then use that frequency to ensure the accuracy of the bandspread dial. Remember, however, that old crystals can change in frequency. Beware of that possible issue!

When using a crystal to check frequency you need to remember that it will show on your receiver on the intended frequency in the transmitter. The crystal itself may be on a different frequency and the transmitter is using the crystal at some multiple of its actually design frequency. So, you may be able to test in two locations. For instance, let’s say you have a crystal you use on 7120 kc (kHz). It may have a fundamental frequency of half of that – or 3560 kc (kHz). So, actually, depending on what you need and the setup in the transmitter, you could test your receiver accuracy at 3560, 7120, 14240, 21360, and 28480 kc (kHz). Funny how that works – and shows the original design of how the bands related to each other. The transmitter works to “emphasize” the output on the band it is tuning (and to reject significant output on bands you are not using.

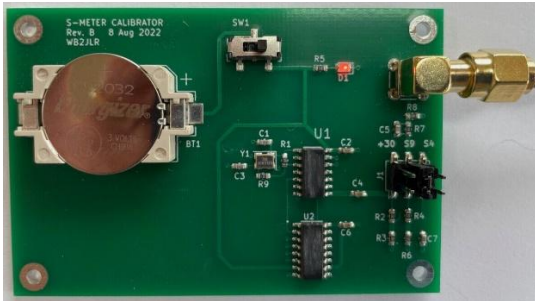
Before closing, I want to show you some modern crystal calibrator tools that have taken up residence at W9MXQ.

To replace the old Heathkit HD-20 Crystal Calibrator, I have added two devices:



Marker Generator Crystal Calibrator 1 mc (MHz), 100 kc (kHz), 50 kc (kHz), and 25kc (kHz) Switched. This under \$25 calibrator from eBay is USA made from a company called Electro-Resales LLC. It replaces the old-style calibrator and even has the ability to be powered from 6.3 VAC filament power in a vintage radio.

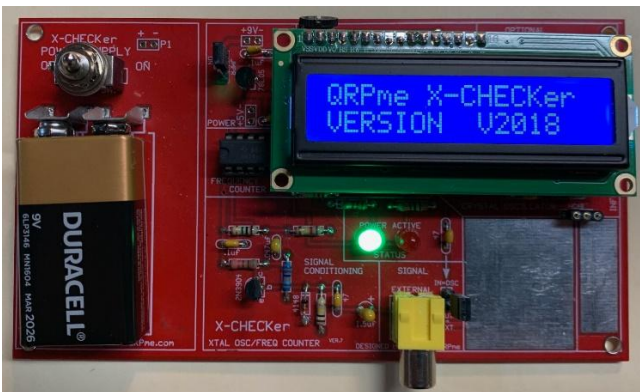
(eBay)



Portable S9 RF Signal Generator. This under \$35 device from eBay is USA made from rprprp54 (WB2JLR). It provides calibrated signals on frequencies 8 through the HF and VHF spectrum. You can select from three levels that include S9+30, S9, and also S49. Power is from a CR2032 Button Cell Battery.

(eBay)

Recalling a product shown in an earlier article, I use a very nice piece of equipment for determining the fundamental frequency of most any crystal. I refer to the QRPme X-CHECKer. This confirms that a crystal is oscillating where you think it should. The X-CHECKer was shown only a few months ago in an article on Hints and Tips on Vintage Radios<sup>10</sup>. Above, I related that crystals age and go off frequency a bit (but sometimes a lot) or just quit working. It pays to have a way to test a wide variety of crystals. Remember, however, that most Crystal Checkers will show the fundamental frequency. The example shown above with a 7120 kc (kHz) crystal may actually be a crystal running on a fundamental frequency of 3560 kc (kHz). The 3560 would show on the readout – not 7120 in that case. Also remember that the crystal could be fundamental on 7120 and show as that frequency on the X-CHECKer.



QRPme X-Checker Crystal Checker. This is available for direct for \$50 plus shipping from:

<http://qrpme.com/?p=product&id=Q17>

(W9MXQ)

One point of clarification in this article – and in any article on calibration of the two-dial (main and bandsread) tuning design. When using the main tuning dial, be sure to note in your radio's Operating Manual how to set the bandsread dial. This is important for the procedures outlined herein.

I appreciate that you read my articles. Remember that I am open to questions and comments anytime at my email address, [W9MXQ@TWC.com](mailto:W9MXQ@TWC.com).

A special note of thanks to my proofreader, Bob Bailey, W9DYQ. Bob is a lot more than a proofreader as he often adds commentary that makes it into the article. Certainly, in an article like this, it is good to have a second person review the process.

## Notes and Credits:

- <sup>1</sup> The radios in last month's article were the Hallicrafters SX-110, the Hammarlund HQ-180C, the Allied Knight-Kit Space Spanner, and the Hammarlund SP-200 SuperPro.
- <sup>2</sup> There were mechanical digital readouts in the 1960's and also some Nixie Tube™ readouts in this period that were little more than a representation of the frequency – not a true frequency counter as used on modern radios. Such units were no more accurate than the analog readout other than very critical mechanical designs to counter the tendency of mechanical readouts to be less than linear in their span. The mechanical digital readout depending on the linearity of the mechanical oscillator drive and in particular the linearity of the variable capacitor or inductor used to tune the VFO.
- <sup>3</sup> "LBDR Ham." Translation – *Licensed Before Digital Readout* Ham.
- <sup>4</sup> MidCARS can be found on the web at <http://midcars.net/>. On the air they are found at 7258.00 kHz. Generally, this one is pretty dependable as to being right on frequency.
- <sup>5</sup> Crystal Calibrators are commonly accurate to 0.005%. That said, a 100 kHz signal could be between 99.9995 and 100.0005 kc (kHz). "Close enough!!" But just remember, as you continue to use harmonics, the error of its deviation specification is also multiplied. This is not a major issue in an HF radio that covers only to 30 mc (MHz).
- <sup>6</sup> AC-DC power means that the unit being powered does not have a power transformer and runs directly off AC mains power. In the case of the Bud FCC90B Calibrator, the 115 VAC is rectified and use for plate voltage on the oscillator. The two tubes' filaments are wired in series directly across the line. One side of the AC line is tied to the oscillator's metal chassis. You can receive a shock if the AC plug is incorrectly connected. A problem from the days before polarized plugs. Be careful!! The use of an isolation transformer – NOT a Variac™ - is strongly advised.
- <sup>7</sup> It is true that the 10 mc (MHz) signal is in our 30-meter band area – but no older receiver includes 30-meters (or any other WARC band) on the bandsread dial.
- <sup>8</sup> Frequencies – mc (MHz) – provided on the Portable S9 RF Signal Generator are as follows:  
N x 1.78977 mc (MHz) – fundamental is 1.78977 mc (MHz) with harmonics above.
- <sup>9</sup> Reference to S9+30, S9, and also S4 is also indicated as -43dBm, -73dBm, and -103dBm, respectively – at 50 ohms impedance. Calibrated Frequency Range is 1.8 to 30 MHz and therein is accurate within 1 dB ( $\pm 0.2$  S-units). Extended Range is 30 MHz to 1 GHz with signals generated where the level is uncalibrated.
- <sup>10</sup> Little Tips and Tricks with Vintage Radios, W9MXQ, September 2022 Ozaukee Radio Club Newsletter. Available at <https://www.ozaukeeradioclub.org/index.php/newsletters>, check for Archives.
- <sup>11</sup> Websites for other organizations mentioned in this article:
  - eCARS (USA) - <http://www.ecars7255.com/>
  - SCARS (USA) - <https://southcars.com/>
  - WWV (USA) - <https://www.nist.gov/pml/time-and-frequency-division/time-distribution/radio-station-www>
  - CHU (Canada) - <https://nrc.canada.ca/en/certifications-evaluations-standards/canadas-official-time/nrc-shortwave-station-broadcasts-chu>





## GARS Membership

### New Members in August

Ben Bailey (K4BGB)  
Byron Brown (KR4GES)  
Helen Brown  
Robert Franko (KR4GFM)  
Lawrence Mc Dermott (KE4ESV)  
Ann Marie Mc Dermott (KG4DKE)  
Patrick Mcdougal (K4GTA)

**New Members: 7**

**Total Members as of  
September 1, 2025  
359**

Join GARS members for our:

- weekly lunch bunch at 11:30 AM most Fridays
- weekly breakfast gathering at 8:00 AM most Saturdays



Friday weekly gatherings are held at the [Chilli's](#) at:

[947 Lawrenceville Suwanee Rd  
Lawrenceville, GA 30043](#)

Saturday weekly gatherings are held at the [Cracker Barrel](#) at:

[75 Celebration Dr  
Suwanee, GA 30024](#)

### Birthdays in September

Karen Albritton (KI4HPP)  
Mary Bachner (KE4MFZ)  
Sherryl Bailey (N3MIU)  
Tina Bearden  
Rachel Buzzerd (AK1L)  
Lynn Crowley (KJ4RTE)  
Ben Cullinan (KN4ZEX)  
Michael Curd (KO4TN)  
James Drumm (N2FOF)  
Freddy Ferrer (KQ4UDS)  
Roger Gibson (WB4T)  
Jesse Haney (KY4MOM)  
John Harris (KC4JVJ)  
Fred Hoefler (W3TLC)  
Anita Jassen  
Richard Kitz (KM4SWL)  
Lawrence Mc Dermott (KE4ESV)  
Charles Mcelhannon (KM4QVI)  
Chris Ritchey (W4CJN)  
John Stockinger (KC4RFK)  
Richard Waigand (K4KME)  
Tim Weikert (KS4MC)  
Carter Wood (AG4LK)

### GARS MEMBERSHIP

Your current GARS membership status is shown in the monthly newsletter e-mail towards the bottom of the message. To become a GARS member, or to renew your GARS membership, please visit our website – [www.gars.org/gars/membership/](http://www.gars.org/gars/membership/). To make changes to your GARS membership (moved, new e-mail address, new phone number, etc.), please contact the Membership Chair at [Email](mailto:Email) (<https://gars.org/contact/>) with any changes to your Membership information.

**Membership Chair:** Karen Albritton, KI4HPP

**Committee Members:** Dave Bruse, W4DTR, Pam Brown, KJ4RYV, John Aguirre, KQ4EJV

### ARRL MEMBERSHIP

To update your ARRL membership information, please visit their website - <http://www.arrl.org>.

### MAINTAIN YOUR LICENSE

You can update your Amateur Radio license information with the FCC at their website for free - <https://www.fcc.gov/wireless/universal-licensing-system>. License renewal is subject to the \$35 FCC fee.





## Donating to GARS

Your GARS donation can be used for a certain purpose by donating to one of these funds:

- GARS SK Memorial Fund for Education (to remember and honor Silent Keys);
- GARS Scholarship Fund (Administered by the ARRL for awarding scholarships);
- GARS General Fund (any club purpose).

GARS has joined these rewards programs (a portion of every purchase you make through these merchants may be donated to GARS):

- Kroger Community Rewards program.

For more information on how to sign up for these rewards programs, or to donate to GARS, visit

<https://gars.org/gars/donations-to-the-club>

## GARS on Social Media



Discord Request:

<https://gars.org/discord>



Groups.io:

<https://gars.org/groups.io>



Visit GARS on Facebook:

<https://gars.org/facebook>



Follow GARS on X:

[https://x.com/GARS\\_Hams](https://x.com/GARS_Hams)



Join GARS on YouTube:

<https://gars.org/youtube>

## GARS Mail Address:

**GARS**  
P.O. Box 492531  
Lawrenceville, GA 30049

## Officers



Bob Hoffmann, President K4CQO



Richard Kitz, Vice President KM4SWL



Harold Brown, Secretary KI4FPR



Glen Wendt, Treasurer W3WWT



Kevin Scott, Program Manager K4GTR

## Managers and Committee Chairs



Karen Albritton, Membership Chair KI4HPP



Dave Bruse, VE Team Leader W4DTR



David Adcock, Webmaster KA4KKF



Ralph Pickwick, Education Chair KJ4CNC



Earl Whatley, Apparel Manager AF4FG



Bob Hoffmann, GARzette Editor K4CQO



Eddie Foust, Repeater Chair WD4JEM



Mike Weathers, WAS / DXCC QSL Card Checker & Historian ND4V



Chuck McCord, Net Manager KK4TKJ



Steve Back, Technical / RFI Advisor WB2OGY



Dallas Mellichamp, Workshop Leader, Field Day Chair N4DDM



Sandy Jackson, Health and Wellbeing KJ4DRO



Kevin Igarashi-Ball, Multimedia Chair W4KIB



Dallas Mellichamp, Georgia QSO Chair N4DDM



Neil Derryberry, Elmer Manager WD4NET



Edwin Henderson, TechFest Chair W4BSR

Open Winter Field Day Chair

## Directors and Trustees



Joe Biddle, AD4PZ



Kyle Albritton, W4KDA



John Davis, WB4QDX



Bill Cherepy, WB4WTN W4GR Trustee



## GARS Meeting Minutes

### Gars Meeting August 12, 2025

**Opening Meeting:** President Bob Hoffman opened meeting at 7PM (1900hrs)

General meeting directions as to leaving the meeting, emergency exits, refreshments. The microphone was passed around for everyone attending for introductions and interest in Ham Radio, class level, class signs, etc. There were 45 people present and some tuned in on zoom.

**Birthday Acknowledge:** Go to Gars website for listing of birthdays for the month.

**Treasurer Report:** Reported by Treasurer Glenn Wendt

**Membership Report** As of August 1, 2025 we have 349 members.

**Committee Reports:** By various Chairpersons.

**Programs:** Program Manager Kevin Scott introduced Mike who gave a very detailed presentation on DX radio etiquette.

**Education:** Ralph Pickwick, Education Chairperson reminded everyone of the monthly Ham test session every 3<sup>rd</sup> Sunday of the month and the General Ham Cram to be held on August 23-24, 2025. Please sign up ASAP.

**Upcoming Events:** Gars Madness October 5-12, 2025 and the Stone Mountain Ham Fest November 1-2, 2025. Please sign up to help.

**New Business:** Dallas reported that the repeater is in Limbo (whatever that means)

Survey paper copy was distributed and submitted.

### **GARS Raffle**

**Closing:** Meeting was close at 8:45 PM (2045 hrs).

---

### Workshop Minutes - August 19th, 2025

**Attendance:** 14

#### Workshop Follow-up on Operating Etiquette

**Presenter:** None

**Brief Summary:** This Workshop did not follow the GARS presentation on HF Operating Etiquette

- Ralph, KJ4CNC, discussed the upcoming HamCrams and the ARISS program.
- Neil WD4NET helped with the programming of a HT.
- General discussions about volunteer opportunities at the November 1st & 2nd HamFest
- General discussions about the new May Madness event

**Elmers are always present at the GARS Workshops. Feel free to bring your questions to the Workshop. If your project is small enough to bring to the meeting, please let us know in advance so we can bring the necessary tools, test equipment, etc.**

73 Dallas N4DDM  
Workshop Chair



## Events – GARS and others

### ARRL CONTESTING INFO

From ARRL Contest Calendar

> For more information click the links <

#### January 2025

- 1 [Straight Key Night](#)
- 4 [Kids Day](#)
- 4-5 [RTTY Roundup](#)
- 18-20 [January VHF](#)

#### February 2025

- 10-14 [School Club Roundup](#)
- 15-16 [International DX – CW](#)

#### March 2025

- 1-2 [International DX– Phone](#)

#### April 2025

- 13 [Rookie Roundup – Phone](#)

#### May 2025 (no ARRL Contests)

#### June 2025

- 7-8 [International Digital Contest](#)
- 14-16 [June VHF](#)
- 21 [Kids Day](#)
- 28-29 [Field Day](#)

#### July 2025

- 12-13 [IARU HF World Championship](#)

#### August 2025

- 2-3 [222 MHz and Up Distance Contest](#)
- 16-18 [10 GHz & Up – Round 1](#)
- 16-17 [EME - 2.3 GHz & Up](#)
- 17 [Rookie Roundup – RTTY](#)

#### September 2025

- 13-15 [September VHF](#)
- 13-14 [EME - 2.3 GHz & Up](#)
- 20-22 [10 GHz & Up - Round 2](#)

#### October 2025

- TBD [Collegiate QSO Party](#)
- 11-12 [EME - 50 to 1296 MHz](#)
- 20-24 [School Club Roundup](#)

#### November 2025

- 1-3 [Nov Sweepstakes–CW](#)
- 8-9 [EME - 50 to 1296 MHz](#)
- 15-17 [Nov Sweepstakes–Phone](#)

#### December 2025

- 5-7 [160 Meter](#)
- 13-14 [10 Meter](#)
- 21 [Rookie Roundup–CW](#)

For more information:

<http://www.arrl.org/contest-calendar>

### HAMFEST CALENDAR

[Please confirm the status of a Hamfest before making plans to attend]

#### 09/06/2025 - [Dalton Swapfest](#)

Location: Dalton, GA

Type: ARRL Hamfest

Sponsor: Dalton Amateur Radio Club, Inc. (W4DRC)

Website: <https://www.grz.com/db/W4DRC>

#### 09/19/2025 - 09/20/2025 [Gadsden Hamfest 2025](#)

Location: Gadsden, AL

Type: ARRL Hamfest

Sponsor: Gadsden Amateur Radio Club

Website: <http://k4jmc.com>

#### 10/03/2025 - 10/04/2025 [Hamfest Chattanooga 2025](#)

Location: Ringgold, GA

Type: ARRL Hamfest

Sponsor: Chattanooga ARC & North Georgia GMRS Network

#### 10/10/2025 - 10/11/2025 [Melbourne Hamfest, ARRL Florida State Convention](#)

Location: Melbourne, FL

Type: ARRL Convention

Sponsor: Platinum Coast Amateur Radio Society

Website: <https://pcars.org/wp/melbourne-hamfest-2025/>

#### 10/10/2025 - 10/11/2025 [NOARC Annual Hamfest](#)

Location: Crestview, FL

Type: ARRL Hamfest

Sponsor: City of Crestview Florida

Website: <https://w4aaz.org/noarc/hamfest-2025/>

#### 10/18/2025 - [Savannah Hamfest and Swapmeet](#)

Location: Savannah, GA

Type: ARRL Hamfest

Sponsor: Coastal Amateur Radio Society

#### 10/25/2025 - [Wiregrass ARC - Fall Tailgate](#)

Location: Headland, AL

Type: ARRL Hamfest

Sponsor: Wiregrass Amateur Radio Club

Website: <http://w4dhn.org>

#### 11/01/2025 - [EPARS Tailgate/Hamfest](#)

Location: Dade City, FL

Type: ARRL Hamfest

Sponsor: East Pasco Amateur Radio Society

Website: <http://eparsonline.org>

#### 11/01/2025 - 11/02/2025

[Stone Mountain Hamfest, ARRL Georgia State Convention](#)

Location: Lawrenceville, GA

Type: ARRL Convention

Sponsor: Alford Memorial Radio Club W4BOC

Website: <https://stonemountainhamfest.com>

#### 11/08/2025 - [Montgomery Hamfest](#)

Location: Montgomery, AL

Type: ARRL Hamfest

Sponsor: Montgomery Amateur Radio Club

Website: <https://w4ap.org/>

For more information: [www.arrl.org/hamfests-and-conventions-calendar](http://www.arrl.org/hamfests-and-conventions-calendar)

When searching by division, remember some states adjacent to GA are in different divisions: Southeastern: GA, AL, FL Delta: TN Roanoke: NC, SC



| GARS Events Calendar for 2025                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                     | GARS Recurring Calendar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">TechFest</a><br>Winter Field Day<br>Dog Show Fundraiser<br>Spring Technician HamCram<br><a href="#">Georgia QSO Party</a><br>North metro area Fox Hunt<br><a href="#">Memorial Day Parade</a><br><a href="#">ARC/KARC Hamfest</a><br><a href="#">Field Day</a><br>Summer General HamCram<br>Fall Technician HamCram<br><a href="#">JOTA</a><br><a href="#">Stone Mt. Hamfest</a><br>Holiday Party | February 1 2025<br>January 25-26 2025<br>March 26-30, 2025<br>March 29-30, 2025<br>April 12-13 2025<br>April 2025<br>May 26 2025<br>June 7 2025<br>June 28-29 2025<br>August 23-24 2025<br>October 25-26 2025<br>October 2025<br>November 1-2 2025<br>December 2025 | <ul style="list-style-type: none"> <li>2nd Tuesday of the month at 7 pm (except December)<br/>Monthly Club Meeting<br/>690 Airport Rd, Lawrenceville, GA 30046</li> <li>3rd Tuesday of the month at 7 pm (except December)<br/>Monthly Workshop<br/>690 Airport Rd, Lawrenceville, GA 30046</li> <li>3rd Sunday of the Month at 3 pm<br/><a href="#">GARS Ham Exam Session</a><br/>690 Airport Rd<br/>Lawrenceville, GA 30046</li> <li>Every Monday at 7:30 pm: GARS Want, Swap, Sell, and Information Net on the GARS 147.075 MHz repeater</li> <li>Every Monday at 8:30 pm: ARES Training on the GARS 147.075 MHz repeater</li> <li>Every Friday at 11:30 am, GARS Lunch at Chili's</li> <li>Every Saturday at 8:00 am GARS Breakfast at Cracker Barrel</li> </ul> |
| GARS Calendar for September 2025                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| SUNDAY                                                 | MONDAY                                                 | TUESDAY                                                   | WEDNESDAY | THURSDAY | FRIDAY                                | SATURDAY                                        |
|--------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------|-----------|----------|---------------------------------------|-------------------------------------------------|
|                                                        | 1<br>7:30 PM<br>2M Net<br>147.075(+) MHz<br>Tone 82.5  | 2<br>7:00 PM Exec<br>Meeting                              | 3         | 4        | 5<br>11:30 AM<br>Lunch at<br>Chili's  | 6<br>8:00 AM<br>Breakfast at<br>Cracker Barrel  |
| 7                                                      | 8<br>7:30 PM<br>2M Net<br>147.075(+) MHz<br>Tone 82.5  | 9<br>7:00 PM<br>Meeting<br>EAA 690<br>Hangar              | 10        | 11       | 12<br>11:30 AM<br>Lunch at<br>Chili's | 13<br>8:00 AM<br>Breakfast at<br>Cracker Barrel |
| 14                                                     | 15<br>7:30 PM<br>2M Net<br>147.075(+) MHz<br>Tone 82.5 | 16<br>7:00 PM<br>Workshop<br>Meeting<br>EAA 690<br>Hangar | 17        | 18       | 19<br>11:30 AM<br>Lunch at<br>Chili's | 20<br>8:00 AM<br>Breakfast at<br>Cracker Barrel |
| 21<br>3:00 PM Ham<br>Radio Exams,<br>EAA 690<br>Hangar | 22<br>7:30 PM<br>2M Net<br>147.075(+) MHz<br>Tone 82.5 | 23                                                        | 24        | 25       | 26<br>11:30 AM<br>Lunch at<br>Chili's | 27<br>8:00 AM<br>Breakfast at<br>Cracker Barrel |
| 28                                                     | 29<br>7:30 PM<br>2M Net<br>147.075(+) MHz<br>Tone 82.5 | 30                                                        |           |          |                                       |                                                 |

More information about the above calendar events can be found on [GARS Calendar](#)



## Local Ham Radio Exams & Meetings

### GARS Ham Radio Exams

**GARS Exam Sessions are held the 3<sup>rd</sup> Sunday of the month**

Preregistration is **REQUIRED**

Doors open at 2:45pm, exams start promptly by 3:00pm

For more information and to preregister, please visit <https://gars.org/exams/>

GARS VE-Team

VEC: W5YI-VEC

EAA 690 Hangar

690 Airport Rd

Lawrenceville, GA 30046

GARS VE Team Leaders

E-mail: [exams@gars.org](mailto:exams@gars.org).



### August 2025 Results

The GARS VE Team exam session results from August 17<sup>th</sup>.

4 new Technicians:

- Byron T Brown – KR4GES
- Robert P Franko – KR4GFM
- Robert McKenzie – KR4GGG
- Thomas A Nagle – KR4GGH

1 Upgrade to General:

- Vincent Oswalt - KR4DHA

Special thanks to the Volunteer Examiners who made this exam session possible:

WB2OGY – Steve Back  
 AI1U – Tony Perales  
 K4CQO – Bob Hoffmann  
 KM4SWL - Richard Kitz  
 KQ4DWZ – Douglas Hooper  
 W4VNA – Lynn Hatker  
 KC2FDU – Elmer Gappi

Thanks & 73, Bob Hoffmann (Co-CVE)

### Local Ham Radio Exams

In order to find an exam session near you, please visit

[http://www.arrl.org/exam\\_sessions/](http://www.arrl.org/exam_sessions/). Contact the information in the listing for further information.



### Local Ham Radio Meetings

In order to find a local Ham Radio Club meeting near you, please visit

<http://www.arrl.org/find-a-club>. Contact the club for meeting information.





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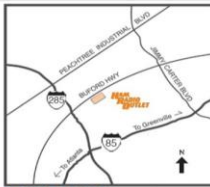


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New England (800) 444-0047

Ham Radio Outlet App available at:



Founded - December 5, 1947

Quarter Century Wireless Association Inc.

W2MM - W2CVF



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Chartered April 29, 1970

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| 1/2 page      | \$150 |
| Full page     | \$200 |

For swap items, post and see items on GARS groups.io (<https://groups.io/g/GARS>).